NC/QC/YD/2020-21/CQ-GSB1 Date: 03-09-2020

TEST REPORT ON GRANULAR SUBBASE MIX
(GRADATION TEST)

Sub: To conduct tests on GSB (Grade-V) mix.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

1. **Gradation Test:**
TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, V Revision-2013
75.00	100.00	100
53.00	95.10	80-100
26.50	81.35	55-90
9.50	54.65	35-65
4.75	46.15	25-50
2.36	17.40	10-20
0.85	8.05	2-10
0.425	3.45	0-5

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Date: 03-09-2020

TABLE 1.2

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS 383-1970 & M o R T H Specification, V Revision -2013.
1.	Water absorption, %	**0.41 %**	Not more than 2.0 %
2.	Liquid Limit, %	**18.42**	Not more than 25.0 %
3.	Plasticity Index, %	**NP**	Not more than 6.0 %
4.	Moisture Content, %	**6.56**	----------
5.	Aggregate Impact Value, %	**28.72**	Not more than 40.00 %

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NC/QC/YD/2020-21/CQ-W1 Date: 08-09-2020

TEST REPORT ON WET MIX MACADAM MIX
(GRADATION TEST)

Sub: To conduct Gradation test on Wet Mix Macadam (WMM) Mix.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

1. Gradation Test:
TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, V Revision-2013
53.00	100.00	100
45.00	94.60	95-100
26.50	---	-
22.40	71.05	60-80
11.20	54.80	40-60
4.75	32.10	25-40
2.36	26.95	15-30
0.600	19.15	8-22
0.075	3.40	0-5

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Date: 08-09-2020

TABLE 1.2

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	27.86%	Not more than 30.00 %
2.	Combined Flakiness and Elongation index, %	28.51%	Not more than 35.0 %
3.	Water absorption, %	0.42 %	Not more than 2.0 %
4.	Plasticity Index, %	NP	Not more than 6.0 %

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NC/QC/YD/2020-21/CQ-BD1 Date: 11-09-2020

1. TEST REPORT ON BITUMEN SAMPLE:

Sub: Testing of Bitumen sample VG-30 Grade.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.
Technical Reference: Ministry of Road Transport and Highways, V Revision, 2013 and IS 73: 1992.

TABLE 1.1 ;

SL No	Details	Test Results	Requirements as per I.S 73 –1992 Specifications
1.	Penetration at 25^0 C	**52.80^0 C**	Min. 45
2.	Ductility Value at 25^0 C	**107.90 cm**	40
3.	Flash point	**243^0 C**	Minimum 220^0 C
4.	Softening point	**51.60^0 C**	Min. 47

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NC/QC/YD/2020-21/CQ-CD1 **Date: 11-09-2020**

1. TEST REPORT ON COARSE AGGREGATE:

Sub: Testing of Coarse Aggregate used in Dense Graded Bituminous Macadam.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TABLE 1.1 ;

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS 383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	**23.16%**	Not more than 27.00 % for DBM
2.	Combined Flakiness and Elongation index, %	**26.65%**	Not more than 35.0 %
3.	Water absorption, %	**0.42%**	Not more than 2.0 %
4.	Specific gravity	**2.62**	-------
5.	Soundness	**6.74 %**	Max. 12 % in Sodium Sulphate

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NC/QC/YD/2020-21/CQ-DBM1 **Date: 18-09-2020**

1.TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.53 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	100	100
26.5	96.15	90-100
19.0	82.30	71-95
13.20	70.05	56-80
4.75	49.80	38-54
2.36	36.75	28-42
0.300	19.10	7-21
0.075	6.25	2-8

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NC/QC/YD/2020-21/CQ-CB1 Date: 14-09-2020

1. TEST REPORT ON COARSE AGGREGATE:

Sub: Testing of Coarse Aggregate used in Bituminous Concrete.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TABLE 1.1 ;

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS 383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	**22.75 %**	Not more than 24.00 %
2.	Combined Flakiness and Elongation index, %	**27.56 %**	Not more than 35.0 %
3.	Water absorption, %	**0.42%**	Not more than 2.0 %
4.	Specific gravity	**2.76**	-------
5.	Soundness	**5.43%**	Max. 12 % in Sodium Sulphate

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NC/QC/YD/2020-21/CQ-BC1

Date: 21-09-2020

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.41 %**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	**100**	100
13.2	**94.25**	90-100
9.5	**82.10**	70-88
4.75	**64.80**	53-71
2.36	**54.65**	42-58
1.18	**42.90**	34-48
0.600	**30.60**	26-38
0.300	**23.10**	18-28
0.150	**16.40**	12-20
0.075	**7.55**	4-10

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NC/QC/YD/2020-21/CQ-BC2 Date: 21-09-2020

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.43%**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	100	100
13.2	93.25	90-100
9.5	83.45	70-88
4.75	68.05	53-71
2.36	53.30	42-58
1.18	42.80	34-48
0.600	34.65	26-38
0.300	22.15	18-28
0.150	16.50	12-20
0.075	8.10	4-10

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NC/QC/YD/2020-21/CQ-BS2

Date: 22-09-2020

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	1352	900
2	Marshall Flow at 60°C, mm.	3.40	2.0 - 4.0

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Page No. 1/1

NC/QC/YD/2020-21/CQ-BC3

Date: 22-09-2020

1.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**
1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.44%**

2. **Gradation Test**
TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	100	100
13.2	95.40	90-100
9.5	80.10	70-88
4.75	66.90	53-71
2.36	53.15	42-58
1.18	40.75	34-48
0.600	32.20	26-38
0.300	24.85	18-28
0.150	17.05	12-20
0.075	7.65	4-10

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NC/QC/YD/2020-21/CQ-BS3

Date: 23-09-2020

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.
{Project*: Improvements to Cross roads at CQAL LAYOUT in ward no 03.}
Ref.: Material testing/QC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Satellite Town Sub Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: Sri. Kiran Gowda. D (Sri Channakeshawa Enterprises), Bangalore.

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	1356	900
2	Marshall Flow at 60°C, mm.	3.42	2.0 - 4.0

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